

Q1. What will be the output of the following program? Explain your answer. [6 Marks]

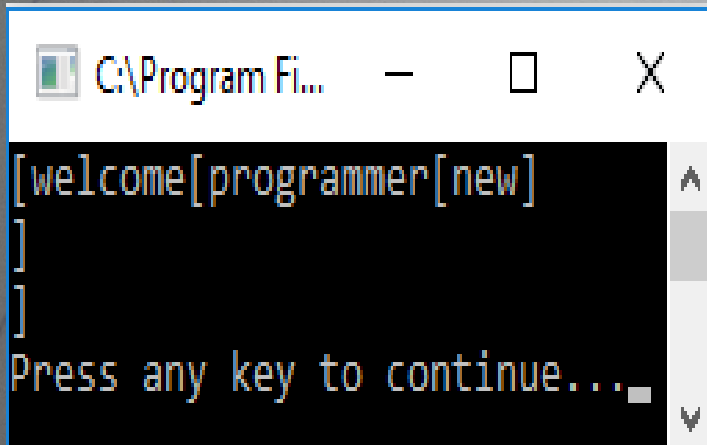
a) [3 Marks]

```
1 class First
2 {
3     public void display(String msg)
4     {
5         System.out.print ("[" + msg);
6         try
7         {
8             Thread.sleep(1000);
9         }
10        catch (InterruptedException e)
11        {
12            e.printStackTrace();
13        }
14        System.out.println ("]");
15    }
16 }
17
18 class Second extends Thread
19 {
20     String msg;
21     First fobj;
22     Second (First fp, String str)
23     {
24         fobj = fp;
25         msg = str;
26     }
27     public void run()
28     {
29         synchronized (fobj)
30         {
31             fobj.display(msg);
32         }
33     }
34 }
35
36 public class Syncro
37 {
38     public static void main (String[] args) throws Exception
39     {
40         First fnew = new First();
41         Second s1 = new Second(fnew, "welcome");
42         Second s2 = new Second (fnew, "new");
43         Second s3 = new Second(fnew, "programmer");
44         s1.start();
45         s1.join();
46         s2.start();
47         s2.join();
48         s3.start();
49     }
50 }
```

C:\Program Fi... - X

```
[welcome]
[new]
[programmer]
Press any key to continue...
```

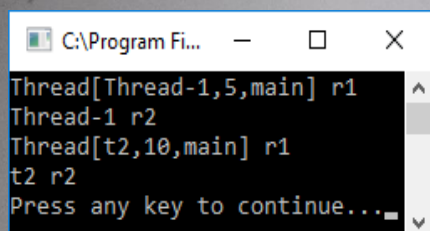
b) What will be the output if we remove lines 29, 45 and 47 in part a? [3 Marks]



A screenshot of a Java IDE window titled "C:\Program Fi...". The console output shows the following text: `[welcome[programmer[new]` on the first line, `]` on the second line, `]` on the third line, and `Press any key to continue...` on the fourth line. The cursor is positioned at the end of the fourth line.

Q2. What will be the output of the following program? Explain your answer. [4 Marks]

```
1 public class MyThread extends Thread
2 {
3     public void run()
4     {
5         System.out.println(Thread.currentThread() + " r1 ");
6         try{
7             Thread.sleep(500);
8         }
9         catch(InterruptedException ie){}
10        System.out.println(Thread.currentThread().getName() + " r2 ");
11    }
12 public static void main(String[] args)// throws Exception
13 {
14     MyThread t1 = new MyThread();
15     MyThread t2 = new MyThread();
16     t1.setName("t1");
17     t2.setName("t2");
18     t1.setPriority(MAX_PRIORITY);
19     t2.start();
20     try{
21         t2.join();
22     }
23     catch(InterruptedException ie){}
24     t1.start();
25 }
26 }
```



A screenshot of a Java IDE window titled "C:\Program Fi...". The console output shows the following text: `Thread[Thread-1,5,main] r1` on the first line, `Thread-1 r2` on the second line, `Thread[t2,10,main] r1` on the third line, `t2 r2` on the fourth line, and `Press any key to continue...` on the fifth line. The cursor is positioned at the end of the fifth line.